MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017/2018

TBI 3131 – BUSINESS INTELLIGENCE

(All sections / Groups)

23 OCTOBER 2017
9.00 a.m. - 11.00 a.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages excluding cover page with 5 Questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

a. Define the term of "Business Inteligence" (BI). (2 marks)

b. List the components of the Pressures–Responses–Support model and explain the model. (3 marks)

c. **Figure 1** is a high-level architecture of business intelligence that can be used to create future components of intelligent systems for business intelligence data reporting and analysis.

Label *a, b, c, d* as main components of business intelligence, *e, f, g, h, i* and *j* as activities for each component and *k, l* and *m* as users for each component in the framework. (5 marks)

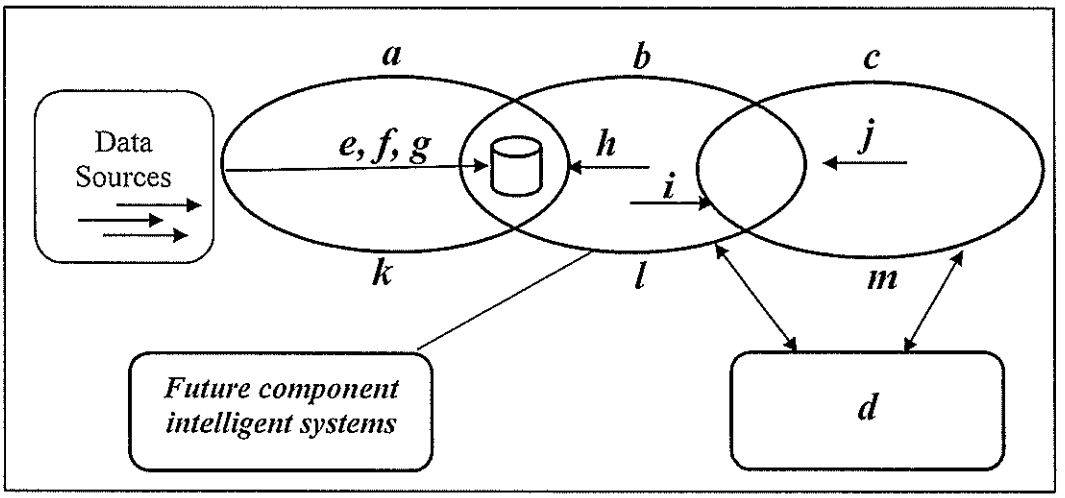

Figure 1: A High-Level Architecture of Business Intelligence.
Source: Based on W. Eckerson, *Smart Companies in the 21st Century: The Secrets of Creating Successful Business Intelligent Solutions.* The Data Warehousing Institute, Seattle, WA 2003, p. 31, Illustration 5.

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QUESTION 2

a. Distinguish between the Kimball and Inmon approaches in data warehouse development. Explain the situation when each one is most effective in. (2 marks)

b. You are a management executive of ABC company who wishes to implement an effective performance management system.
   i. Explain the ingredients for obtaining an effective performance management system for ABC company. (2 marks)
   ii. Identify **TWO (2)** competing performance measurement systems for ABC company. (1 mark)
   iii. Distinguish the **TWO (2)** competing performance measurement systems in Question b(ii). (2 marks)

c. Explain why many different types of charts and graphs are used in information visualisation. Defend your answers by using any **FOUR (4)** types of charts and graphs as examples. (3 marks)

QUESTION 3

a. Briefly describe **THREE (3)** fundamental data mining methods. (3 marks)

b. As a business analyst, prove which business idea is the best to venture based on the following statistical data. (2 marks)

Business Idea	Success Rate	Gain (RM)	Loss (RM)
Fruit Stall	52	10,000	-5,000
Cafe	48	31,000	-15,000
Food Truck	50	25,000	-10,000

c. Explain with examples of situations in which classification would be an appropriate data mining technique. (1 mark)

d. Explain with examples of situations in which regression would be an appropriate data mining technique. (1 mark)

e. Perform K-Means clustering for the following data points; assuming k = 3.

2, 4, 6, 8, 12, 17, 18, 27, 32 (3 marks)

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QUESTION 4

Lotte.com, the leading Internet shopping mall in Korea with 13 million customers, has developed an integrated Web traffic analysis system using SAS Customer Intelligence. As a result, Lotte.com has been able to improve the online experience for its customers, as well as generate better returns from its marketing campaigns. Now, Lotte.com executives can confirm results anywhere, anytime, as well as make immediate changes.

With almost 1 million website visitors each day, Lotte.com needed to know how many visitors were making purchases and which channels were bringing the most valuable traffic. After reviewing many diverse solutions and approaches, Lotte.com introduced its integrated Web traffic analysis system using the SAS solution. This is the first online behavioral analysis system applied in Korea.

With this system, Lotte.com can accurately measure and analyse website visitor numbers (UV), page view (PV) status of site visitors and purchasers, the popularity of each product category and product, clicking preferences for each page, the effectiveness of campaigns and much more. This information enables Lotte.com to better understand customers and their behavior online, and conduct sophisticated, cost-effective targeted marketing.

Since implementing SAS, Lotte.com has seen many benefits:

A Jump in Customer Loyalty
A large amount of sophisticated activity information can be collected under a visitor environment, including quality of traffic.

Optimised Marketing Efficiency Analysis
Rather than just analysing visitor numbers only, the system is capable of analysing the conversion rate (shopping cart, immediate purchase, wish list, purchase completion) compared to actual visitors for each campaign type (affiliation or email, banner, key words and others), so detailed analysis of channel effectiveness is possible.

Enhanced Customer Satisfaction and Customer Experience Lead to Higher Sales
Lotte.com built a customer behavior analysis database that measures each visitor, what pages are visited, how visitors navigate the site and what activities are undertaken to enable diverse analysis and improve site efficiency. In addition, the database captures customer demographic information, shopping cart size and conversion rate, number of orders and number of attempts.

The most significant benefit of the system is gaining insight into individual customers and various customer groups. By understanding when customers will make purchases and the manner in which they navigate throughout the Web page, targeted channel marketing and better customer experience can now be achieved.

Plus, when the SAS solution was implemented by Lotte.com's largest overseas distributor, it resulted in a first-year sales increase of 8 million euros (US$10 million) by identifying the causes of shopping-cart abandonment.

Source: https://www.sas.com/en_us/customers/lotte.html

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a. Based on the article, demonstrate how Lotte.com used business analytics to improve sales. (4 marks)

b. Discover the challenges, proposed solution and obtained results of Lotte.com from the article. (4 marks)

c. Based on the article, do you think e-commerce companies are in a better position to leverage benefits of business analytics? Why? (2 marks)

QUESTION 5

a. List **TWO (2)** main types of approaches used in recommendation engines. (1 mark)

b. Give an example of website for the **TWO (2)** main types of approaches identified in (a). (1 mark)

c. Demonstrate how the **TWO (2)** approaches differ in recommendation engines. (4 marks)

d. "Analytics-based applications can be used to enhance productivity". Give an example of an online application which demonstrates this statement. (4 marks)

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